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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/674,570	09/30/2003	Christopher A. Michaluk	CPM 02073 (3600-404-01)	5108
7590 04/08/2005			EXAMINER	
Martha Ann Finnegan, Esq. Cabot Corporation 157 Concord Road Billerica, MA 01821-7001			VERSTEEG, STEVEN H	
			ART UNIT	PAPER NUMBER
			1753	

DATE MAILED: 04/08/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/674,570

Applicant(s)

MICHALUK ET AL.

Examiner

Steven H. VerSteeg

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 March 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-29 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-14, 18, 19, 23-25 and 28 is/are allowed.
- 6) ☒ Claim(s) 15-17, 20-22, 26 and 29 is/are rejected.
- 7) ☒ Claim(s) 27 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 15-17 and 29 are rejected under 35 U.S.C. 102(e) as being anticipated by US 2002/0112955 A1 to Aimone et al. (Aimone).

3. For claim 15, Applicant requires a sputter target comprising tantalum hydride or niobium hydride located onto a backing plate.

4. Aimone discloses a sputtering target of tantalum hydride or niobium hydride on a backing plate [0003].

5. For claim 16, Applicant requires the sputter target to be an eroded sputter target. When the target is used, it has been eroded and then is separated from the backing plate. Thus, there is an eroded sputtering target on a backing plate [0003].

6. For claim 17, Applicant requires the backing plate to comprise copper, aluminum, or alloys thereof. The backing plate can be copper [0015].

7. For claim 29, Applicant requires the target to be a planar target. Aimone discloses a planar sputtering target (Figure 1).

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 20 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 2002/0112955 A1 to Aimone et al. (Aimone) in view of US 5,863,398 to Kardokus et al. (Kardokus).

10. For claim 20, Applicant requires the backing plate to be bonded onto the tantalum hydride or niobium hydride by diffusion bonding, explosion bonding, electron beam welding, inertia welding, or combinations thereof. For claim 21, Applicant requires the bonding to be by mechanical means.

11. Aimone does not disclose the specific bonding method for the backing plate to the target, but does indicate that some sort of bonding is used [0003].

12. Kardokus discloses that sputtering target are conventionally bonded to backing plated by TIG welding, brazing, soldering, or explosion bonding (col. 1, l. 25-28).

13. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the invention of Aimone to utilize TIG welding, brazing, soldering, or explosion bonding to bond the backing plate to the sputtering target because of the desire to utilize conventional means.

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14. Claims 22 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 2002/0112955 A1 to Aimone et al. (Aimone) in view of US 5,693,203 to Ohhashi et al. (Ohhashi).

15. For claim 22, Applicant requires an interlayer between the tantalum hydride or niobium nitride and the backing plate.

16. Aimone is described above, but does not disclose an interlayer.

17. Ohhashi discloses that utilizing an interlayer between the target and the backing plate is beneficial because it prevents deterioration in quality characteristics (col. 4, l. 36-60).

18. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the invention of Aimone to utilize an interlayer between the target and the backing plate because of the desire to prevent deterioration in quality characteristics.

19. For claim 26, Applicant requires the backing plate to comprise a hydridable material.

20. Aimone uses a copper backing plate but copper does not hydride.

21. Ohhashi discloses that when using a refractory material as the target, copper, titanium, and aluminum are equivalent backing plates (col. 4, l. 65-68).

22. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the invention of Aimone to utilize titanium as the backing plate because titanium and copper backing plates are art recognized equivalents.

Response to Amendment

23. The objection to the specification presented in the office action mailed December 20, 2004 is withdrawn in light of the amendment.

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24. All rejections involving WO 02/42513 A2 to Cabot Corporation (Cabot) are withdrawn in light of the fact the reference would only qualify as a 102(e) reference, and it is not “by another”.

Allowable Subject Matter

25. Claims 1-14, 18, 19, 23-25, and 28 are allowed.

26. Claim 27 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

27. The following is a statement of reasons for the indication of allowable subject matter: it is neither anticipated nor obvious over the prior art of record to have a method to recover components of a sputter target assembly comprising a tantalum or niobium target bonded to a backing plate as claimed in claim 1. It is also neither anticipated nor obvious over the prior art of record to have a sputter target as claimed by Applicant in claim 27.

28. Aimone recovers the spent sputtering target material by filling powder into the eroded sputtering target. The target could originally be a tantalum hydride or a niobium hydride, but the target is not a tantalum or niobium target that is hydrided during the recovery process. Also, while the backing plate is of a material that can be hydrided, the backing plate is not hydrided. There is no motivation to hydride the backing plate and there is no motivation to purposely hydride tantalum or niobium targets.

General Information

For general status inquiries on applications not having received a first action on the merits, please contact the Technology Center 1700 receptionist at (571) 272-1700.

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For inquiries involving Recovery of lost papers & cases, sending out missing papers, resetting shortened statutory periods, or for restarting the shortened statutory period for response, please contact Denis Boyd at (571) 272-0992.


For general inquiries such as fees, hours of operation, and employee location, please contact the Technology Center 1700 receptionist at (571) 272-1300.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Steven H. VerSteeg whose telephone number is (571) 272-1348. The examiner can normally be reached on Mon - Thurs (6:30 AM - 5:00 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nam X. Nguyen can be reached on (571) 272-1342. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Steven H VerSteeg
Primary Examiner
Art Unit 1753

shv
April 4, 2005